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AMERICAN DYESTUFF REPORTER

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IN THIS ISSUE

The Use of German Formulas and Patents

Dyeing Miscellaneous Fibres By Josef Loebl

Publicity and the Dyestuff Industry

An American Nomenclature for American Dyes

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A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

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THE USE OF GERMAN FORMULAS AND PATENTS

Now Is the Time for American Manufacturers to Familiarize Themselves With New Colors

THERE has been a great amount of space devoted in the press during the past few months to the information that somebody in Switzerland had secured possession of over 250 recipes for the manufacture of important German dyes, and that the same had been placed in the hands of color producers.

The belief is current that the manufacture of artificial dyes is based upon methods which are carefully kept secret by the German makers. This is, however, far from the case. As a rule, all essential features of each process are carefully protected by patent claims, the details of which are available to the public. Several thousand patents for artificial colors have been issued by the United States Patent Office, chiefly to German inventors, and a printed copy of any of these can be obtained for five cents.

While apparently, and technically, such a patent should reveal all that is needed for an intelligent chemist to reproduce the inventor's results, yet, as a matter of fact, the great majority of them are so skilfully composed and worded that it is by no means an easy matter to ascertain from their contents how to make a given dye. In the first place, there is no mention by name, in a patent, of the color or colors known to the trade, which are placed under protection. While this circumstance offers certain difficulties to the tyro in dyestuff production, it is a matter of slight concern to the large companies engaged in this branch of industry. All new colors are subjected to a most careful and searching laboratory examination, and the true relations to patents are fully established. Investigations from the scientific standpoint are also made in the laboratories of universities and technical schools, and by this means a certain literature is gradually created in connection with a color of prominence.

From neither of these sources, however, comes the exact information as to the method in practical use by a company for the most economical production by it, on a large scale, of a given dye, nominally associated with a published patent. The latter may be very broad in its terms, covering several classes of reactions, and the use of numerous materials of closely allied nature. Thus, a patent may

specify, for the production of a certain class of colors, the use of aromatic amines or their homologues or derivatives. Certain illustrative examples may be given. They may contain no actual allusion to the actual coal-tar compound employed in making the dye in question, or the chemicals with which it reacts. There are hundreds of possibilities covered by the working of the patent. An exhaustive analytical study may throw light upon the question of the coal-tar intermediates employed and yet give absolutely no indication as to the chemicals to be used for oxidation, condensation, reduction, etc.

Again, the question of materials may be comparatively simple and the requisite information along these lines may be clearly given in the patent. But it may fail, however, to supply the needed data on relative quantities, time required, temperatures to be maintained and other data of a physical nature. It is highly probable that the "recipes" secured in Switzerland refer to the accumulated experience in this latter field, concerning the production of staple dyes, which may have been gained through a long series of years by some one of the German color combine.

In regard to the older dyes, the triphenylmethane colors, most of the azo colors, the Eosine class, etc., chemists now know pretty accurately just what intermediates are to be employed, and in what quantities. It is, however, inevitable that any firm, engaged for a long time in the production of them, has perfected numerous minor details of treatment which result in a lower cost of production or a more perfect adaptation to the specific demands of certain of their consumers.

The possession of such knowledge is not absolutely indispensable in the building up of the dyestuff industry in another country. The essential tinctorial values of the overwhelming majority of the standard, staple dyes, can be duplicated, in this land, for example, without real difficulties being encountered. Our quick-witted American chemists have rapidly improved upon known processes in this field, as they do in others.

It is in the coming contest for holding the domestic market and for gaining the foreign markets, that the possession of such detailed knowledge as is outlined above would prove of great value. More or less information of this character is constantly being secured by American manufacturers of colors as they engage chemists of experience and proven worth from foreign dye works (Swiss in most cases), each of whom possesses a tolerable range of familiarity with a limited number of colors. It is not infrequently the case that such chemists are restricted by formal contract provisions from communicating information gained while in the employ of a given concern. Despite such provisions, however, the information is bound to become eventually known.

A year or so ago there was a chemist in Switzerland who had been for a number of years at the head of a French factory of a leading German color company. After the works had been commandeered by the French government, and he was retired, he was quite ready to consider an American connection based upon his intimate knowledge of the manufacture of a large variety of dyes. It may be possible that his repertoire forms the basis of the statements referred to above.

Questions concerning the use of German patents and dye formulas recall the eagerness with which England took advantage of her opportunity to avail herself of them. It was not so long ago that British Dyes, Ltd., applied for permission to make dyes covered by seventy-seven patents. These concern chiefly vat dyes obtained from anthraquinone derivatives, and include also a number of

important azo colors as well as sulphonic dyes in other groups, especially those producing black, brown and blue shades.

In this country regulations were formulated by the Federal Trade Commission under which patents owned by enemy aliens could be licensed for manufacture by American citizens. These regulations follow the law closely in safeguarding the interests of patent owners, who must be reimbursed for the use of their inventions, and provide that licenses shall be issued only when the interests of the public demand it to supply a demand not at present being met. The licensee must also prove his ability to make the dye in question.

Licenses are to be granted for the life of the patent, and not merely for the duration of the war, and this is in direct acquiescence to an objection proposed by the dye interests that it would be prohibitive to go to the expense of installing costly machinery if they would have to surrender their rights to make the dyes after the war. Exclusive licenses are not granted to individual concerns. The licensee is required to file with the Federal Trade Commission a semi-annual report of the business done.

In exceptional circumstances, the use of trade-marks, copyrighted labels and similar trade devices is granted in connection with the use of the patents.

In the face of all this, it is not to be forgotten that the broader our grasp of knowledge of varying operations, the stronger will be our hold on the general situation and the greater our ability to lower costs of manufacture so as to effectively ensure the continuance of the domestic output of individual dyes.

One great source of power in a German dyestuff company is their ability to concentrate the experience of a large group of talented chemists on any current problem. Each one contributes from his own special field a helpful idea and aids in simplifying the final solution.

For this reason it is extremely desirable that the American coal-tar chemical industry should utilize the present opportunity to make as large a circle as possible thoroughly intimate, by actual practice, with all the recent progress in branches which have hitherto been completely closed to us.

A business man in France desires to purchase and to secure representatives for the sale of aniline dyes such as marine blue and other solid colors of very good quality for use in the French textile business. Catalogues and price lists, as well as samples, if possible, should be submitted. Cash will be deposited in an American bank in France for payment. Correspondence should be in French. Reference. Those interested should refer to Foreign Trade Opportunity Number 27,189 at the U. S. Bureau of Foreign and Domestic Commerce or its branch offices.

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AN AMERICAN NOMENCLATURE FOR AMERICAN DYES

The claim is advanced that the position of the American coal-tar color industry would be vastly strengthened if all the dyestuffs made regularly in this country should be given distinctly American names instead of the designations employed by the foreign inventors or currently employed by foreign manufacturers.

John Campbell & Co. have issued a pamphlet on the subject in which the argument is elaborated at some length. The presentation of the idea is quite forcible and merits consideration, as will readily be seen from the following extracts:

"The development of the American Dyestuff Industry during the past few years, dating from the time of the beginning of the great world war, is a record of achievement that well deserves an enviable place in the annals of American business. The reason for our neglect of this industry during the many years prior to the war is an open question admitting of many different, well-founded opinions. Be the cause what it may it is a universally recognized fact that the entire world depended upon Germany for aniline colors and all nations were almost wholly and surely pitifully unprepared to meet the conditions brought about by the shutting off of this source of supply.

"The American manufacturer has demonstrated to the world in a few short months that he is capable of building up a self-sustaining dyestuff industry. He has produced most of the simple colors and is now bringing out the more difficult colors; this the American manufacturer has done in the face of difficulties and obstacles that to a less determined people would have been deemed insurmountable.

"Time, patience and a high degree of technical knowledge, as well as expensive equipment, are essential to the production of synthetic colors. The American manufacturer with rare faith in the ability of the American chemist has willingly invested his capital, cheerfully paid for the costly research work and necessary experiments and his faith in American brains has been rewarded by the joy of creating a great industry.

"But in this great industry representing even in its infancy an investment of many millions of dollars and created by countless days of effort, worry and anxiety while it was passing through the experimental stage, to be a permanent monument to the achievement of American business and chemical genius, or is it to be but a spasmodic industry, only bridging the time of the duration of the war until the German dyestuffs manufacturers cease making explosives and concentrate their efforts to the recapture of the business, the monopoly of which they so long enjoyed?

"This question is a momentous problem with ramifications entering into every branch of American commercial life. We will devote a little space to the consideration of but one aspect of this problem and discuss briefly the influence of nomenclature, as the Germans have practised it, upon the dyestuff industry.

"It seems that a myth went up and down the earth a few years ago, that the Germans were a race of supermen. When a man or a cult representing a group of men claims superiority in any special line of thought or endeavor and constantly reiterates that claim, the world either dismisses them from its mind as bores or eventually believes them. The Germans as a nation admitted their superiority and the world chose to believe them.

"The German nation has applied science to industry as has no other people. Even the influence of therapeutic suggestion, its recognized power to shape and dominate the opinion of others, has not been overlooked by

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them, but has been applied to business. The recognized power of this suggestive art to shape and dominate the thought and opinion of others has been systematically used in their various forms of propaganda. The world has been told from time to time that the production of coal-tar dyes was a peculiarly German institution; that they could not be made by other countries. This statement was accepted as a fact in the days preceding the war, but when the source of supply was shut off the American manufacturer soon got busy and punctured this German myth. We are producing most of the widely used colors which we had been told were impossible of production outside the German factories, and our manufacturers are now actually bringing out some of those more difficult colors which it has taken German chemists many years to produce.

"But it is in the naming of thier colors that the German manufacturers have displayed real sagacity and genuine business acumen and it is with this weapon of nomenclature that the American manufacturer must fight back. Each German firm as it produced various colors naturally christened them with names. At first each name really described a shade or color or indicated to which chemical family or group the color belonged. Later this custom was changed; an arbitrary, copyrighted word being given as a name which identified the color as a product of a certain German factory. Where several factories were producing the same shade or color, each factory gave its own special name. For instance, several German firms were making the same direct cotton color, a bright blue shade: one manufacturer called this shade "Diamine Blue," another gave it the name of "Benzo Blue," while other names used were "Chicago Blue," "Oxamine Blue," etc.

"Now the American consumer will never willingly put himself in the position he occupied when the war shut off the supply of German colors. He realizes the necessity of having a dependable source of supply at home, and the only way this can be done is for the consumer of dyes to support the American dyestuffs manufacturer. No American mill man should use the German trade words for the name by which he has known colors in the past; to do so would be playing right into the hands of the German business propagandist. Therefore, let us be loyal to everything American, and among other things designate the American colors by their American names."

In an attempt to discover incriminating evidence that they have been aiding the spread of German propaganda in this country, the past actions and personal belongings of Ferdinand Thun and Harry K. Jannsson, who control three Philadelphia textile concerns, are being investigated by agents of the Department of Justice. It is claimed that these men have consistently aided pro-German writers and publications. The concerns referred to are the Textile Machine Works, the Berkshire Knitting Mills and the Narrow Fabric Co.

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A. P. HOWES, Editor and Publisher

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PUBLICITY AND THE DYESTUFF INDUSTRY

Since the outbreak of the war the American dyestuff industry has grown from a mere shell to a business of really gigantic proportions. This growth has been possible largely—in fact almost entirely—because of the absence of German competition. As the time approaches when this competition will be restored the question of how it is to be met is engaging more and more the attention of those most interested in a permanent establishment of our domestic industry.

There is no doubt that the factor which will contribute most largely to the success or failure of the efforts of American manufacturers toward making the industry permanent will be the attitude of the consumers of dyestuffs. By consumers is meant not only textile mills and others who use dyestuffs first hand in large quantities but also the general public who consume the articles in the manufacture of which American colors are used.

The technical difficulties concerned with the development of needed colors of proper character are being carefully studied and overcome with constantly-increasing rapidity by large manufacturers of dyestuffs. Once given the colors themselves, however, the attitude of the consumer becomes of paramount importance.

The most effective means toward shaping the attitude of the consumer is proper publicity. This is a question which has, to a certain extent, been neglected, but which will from now on demand the attention of the dyestuff industry in constantly increasing ratio. The first-hand instrument for the spread of such necessary publicity and its accompanying propaganda of various types is the trade press. If the industry is to survive, the trade publications must have not only the whole-hearted support of the manufacturing element of the industry, but it must, as well, have the cooperation and confidence of the consuming element.

As has been repeatedly announced in these columns, the AMERICAN DYESTUFF REPORTER feels that its chief mission is to stimulate, in every way possible, the development of the American industry and to counteract German propaganda of every type whenever it is recognizable. In order to do this efficiently we must have the cooperation of every element in the industry. The American manufacturers of colors have been most appreciative of our efforts and have made it possible for us to continue our work through their generous advertising expenditures. It now seems to us that it is only fair to ask the color consumers of the country to bear a small portion of the expense of the work which we are carrying on.

In the ten months since the DYESTUFF REPORTER was established we have maintained a weekly circulation of 3,500 copies, reaching practically all of the large consumers of dyestuffs in whatever field they might be located. A large proportion of this circulation has been included in our free list. We feel that the time has now come when these consumers may reasonably be asked to pay for this service if they find it of value. There is another matter which weighs with us in this connection—the U. S. Post Office requires that before a periodical shall be registered as second-class matter the larger proportion of its circulation must be paid for by the recipients. We are very anxious to secure such second-class entry—first, because of the large saving in postage bills and, second because of the added dignity which such entry carries with it. The money which we would receive from a substantial increase in our paid circulation, together with the saving which would be effected in postage bills by second-class entry, would provide a sum which we could very probably use

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for propaganda work of various types which we have discussed with leading factors in the industry and which we feel would be of very great value in assisting the spread of the proper sort of publicity for the American Dyestuff industry.

We now, accordingly, make the strongest sort of an appeal to those of our friends who are interested in furthering the development of the industry in this country and in making it impossible for the Germans ever again to become large factors in this market, to favor us with their subscriptions. Every cent of the money so received and the saving in postage bills which will be effected thereby will be spent to carry on the fight against the German dye ring.

There is a coupon at the bottom of this page. Will not those of our readers who are not now paid subscribers further the cause by signing and returning same to us to-day?

NATIONAL EXHIBIT AT B. ALTMAN & COMPANY

The exhibit of The National Aniline & Chemical Company, Inc., which was on view on the sixth floor of B. Altman & Company's New York Store during the week of August 5th, attracted an unusual amount of attention not only from the patrons of the store but from visiting buyers from out of town stores who are at this time in New York making their purchases for the fall season. The interest shown by department managers and sales people generally, both from the Altman store and out of town institutions as well, was very highly gratifying. Nearly all of them brought up for discussion with Dr. Matos, of the National Company, who is in charge of the exhibit, personal instances of difficulties which they had had with certain fabrics and asked for an explanation as to how these difficulties might be explained to customers without discrediting American-made dyes. In nearly every instance it was shown that the fabrics were faulty because of imperfect dyeing and not because the dyes themselves were of poor quality.

There is no doubt that publicity of this sort leading to the proper education of sales people in our department stores is a matter which should receive most careful attention from all who are interested in the American Dyestuff industry. These people come into direct contact with the purchasing public and are relied upon by the public to endorse the goods which they handle. If these sales people are unable to make satisfactory explanations in regard to their goods and simply take refuge behind the oft-repeated assertion that they "cannot guarantee American-made colors" an untold amount of harm to the industry is bound to result. If, on the other hand, they are able to show that the fault, if any, lies with the dyeing department at the mill which produced the fabrics, it will go far toward placing the blame where it properly belongs and obviating the tendency on the part of many fabric manufacturers to secure quick production at the expense of the permanency of colors.

The National exhibit will be more or less continuously on the move during the next two or three months, being booked to appear in various department stores as far west as Milwaukee and St. Louis. There is no doubt that the educational effect of this exhibition is a very decided step in the right direction.

Howes Publishing Co.,
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Gentlemen:—Kindly enter .... subscription to the AMERICAN DYESTUFF REPORTER for one year from January 1, 1919, for which you may send bill in the sum of $3.00. It is understood that weekly copies from this date till January 1, 1919, will be included without extra charge.

Yours very truly,

.....

.....

(Check may be enclosed if convenient.)

DYEING MISCELLANEOUS FIBRES

By Josef Loebl

The following article from the *National Dyer and Cleaner* takes up little-mentioned problems in dyeing, and is so comprehensive that it is herewith reproduced for the benefit of our readers:

Linen, Hemp, Linen and Cotton Unions

To prepare these fibres before dyeing they should be boiled with soda ash, using from five to ten per cent. of the ash on the weight of the goods. If bleaching is necessary to obtain certain shades this may be accomplished by combining the "grassing" method with the chlorine bleaching process.

The dyeing of linen, hemp and linen and cotton unions is carried out in the same manner that cotton is dyed. In this connection, though, it should be noted that dyestuffs do not penetrate as deeply into the linen fibre as is the case with cotton, and, therefore, less dyestuff is required to produce a certain shade. For the same reason, when dyeing with substantive colors, the rate of absorption should be retarded by the addition of Turkey red oil, in the proportion of from two to three per cent. on the weight of the goods, soap or Glauber's salt. Less salt is required for the purpose than Turkey red oil.

Fastness is not required, as a rule, when dyeing hemp. However, it frequently happens that the dyer will be called upon to dye hemp strings with colors that will not mark off on white.

Ramie

In general the properties of ramie are similar to those of linen and the dyeing operation is carried out in a similar manner.

Jute

For many purposes jute is dyed unbleached and needs only to be cleaned by working in boiling water before the dyeing is done. If, however, special value is attached to purity and brightness of shade, the jute must be bleached by one of the following methods:

1. With bleaching powder using the same process as for cotton. One-half pound of the bleaching powder should be used for each one hundred pounds of yarn.

2. With potassium permanganate and sulphurous acid, using the same process as for wool.

When good fastness to light and thorough penetration is desired the acid dyestuffs are particularly suitable. The material should be entered into a concentrated bath containing the necessary quantity of dyestuff and one-third pound of alum. The dye liquor should be brought to a boil and kept at this temperature for thirty minutes. The jute

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PARAPHENYLENEDIAMINE
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should be worked for an additional thirty minutes as the bath cools.

The dyebaths do not exhaust, especially when dark shades are being dyed, and can be used for additional lots after replenishing with dyestuff and alum as required.

For one hundred pounds of jute yarn use one hundred gallons of dye liquor when dyeing light shades, and from one hundred and fifty to two hundred gallons when dyeing dark shades. If the dyeing is being done in a copper dye kettle three ounces of ammonium sulphocyanide should be added to each one hundred gallons of the bath to prevent the shade from being dulled.

Basic dyestuffs are suitable for dyeing jute when it is desired to dye heavy shades at a low cost. Enter the unmordanted yarn into the cold bath, adding the basic dyestuff, which has previously been well dissolved, in small amounts at a time. Heat the bath slowly to a temperature of from one hundred and forty to one hundred and fifty degrees F., after which shut off the steam and dye slowly for thirty minutes longer.

For light shades the proportion of jute to liquor should be one to twenty; for darker shades one to fifteen. If there is difficulty in obtaining level dyeings, add one-fourth pound of alum for each one hundred pounds of yarn. When dyeing with Iodine Blue add one-third pound of alum, bring the bath to the boil and boil for fifteen minutes. Dyeings with better fastness to rubbing and water may be obtained by an after-treatment with about one pound of tannic acid, or a corresponding quantity of some other tannic matter, in a fresh, lukewarm bath.

Jute dyed with the direct colors possesses good fastness to both water and rubbing. The goods are worked for thirty minutes at the boil, adding from ten to twenty pounds of crystallized Glauber's salt to the bath, or from five to ten pounds of calcined Glauber's salt or common salt. When dark shades are being dyed the goods should be worked for thirty minutes longer while the bath is cooling down. For dark shades the dye bath should contain one hundred gallons and for light shades one hundred and fifty gallons for each one hundred pounds of yarn.

Red and pink shades are produced on jute with the Eosine dyestuff. A concentrated bath is prepared with the addition of from twenty-five to fifty pounds of common salt. The goods are entered while the bath is cold or lukewarm, the bath is brought to a boil, the steam shut off and the dyeing continued for an additional thirty minutes. The proportion of the goods to the liquor should be one to ten. The bath is not exhausted and may be used for further lots by the addition of further dyestuffs and about ten pounds of common salt. The following dyestuffs are suitable for this work: The Eosines, Crythrosines, Phloxines, Rose Bengals and Rhodamine B. If the fastness to light of the dyestuffs given above is not sufficient, Rhodamine B should be used shaded, if necessary with Auramine II, and dyed with the addition of acetic acid.

The sulphur colors are seldom used for dyeing jute, but they are suitable for the production of shades especially fast to light andwashing. Inasmuch as the cleaner and dyer seldom, if ever, uses sulphur colors no mention of the process will be made here.

Coir

Coir is dyed in either the raw or bleached state. Bleaching powder, extensively used for bleaching cotton and jute, is also suitable for bleaching coir. Other bleaching agents used are hydrogen peroxide, sodium peroxide, potassium permanganate, etc. Good results can also be obtained with some of the patented bleaching preparations on the market.

The processes used for dyeing coir are similar to those used for jute, but

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the following supplementary details are worthy of attention:

When dyeing with acid aniline dyestuffs allow the goods to cool down in the bath after the dyeing is completed, and consume from two to three hours in the dyeing operation. When large quantities of Orange II are used add about one-half pound of alum for each one hundred pounds of coir yarn. If difficulties with regards to leveling are met with, when using the basic dyestuffs, add about one-half pound of alum per one hundred pounds of yarn. When dyeing with the Eosine dyestuffs, add from twenty to thirty pounds of common salt per one hundred gallons of dye liquor.

Straw

Boil the straw plait for from ninety minutes to two hours, adding, if desired, one pound of sodium acetate per one hundred pounds of material. In this connection it should be noted that while the sodium acetate assists in the boiling out operation it also causes a yellowish ground shade. A slight addition of tartaric acid when boiling out has the contrary effect, making the material lighter. To obtain very bright and clear shades, first bleach the straw with hydrogen peroxide and then treat it with Blankit as described below:

Steep the material for several hours at a temperature of from eighty to one hundred degrees F. in a solution of hydrogen peroxide prepared by dissolving one and one-half pounds of oxalic acid in ten pounds of soft, cold water. Add one pound of peroxide slowly, stirring the while. Then add to the bath enough sodium silicate to make it slightly alkaline. The straw should be rinsed when removed from the peroxide bath and then steeped for several hours in a solution of Blankit made in the proportion of ten pounds of Blankit to each one hundred gallons of water.

The Blankit solution may be used for further lots by adding one-third of the original amount of the preparation. To hasten the bleaching action the bath may be strengthened by adding only one-half of the water given above.

The straw should be dyed at the boil with the addition of from one-half to one pound of tartaric acid, or one-half to two pounds of acetic acid (nine degrees Tw.) until it is sufficiently dyed. On an average of from one to three hours will be required. The bath should then be allowed to cool down and the material left in it for an additional hour.

When dyeing straw with basic dyestuffs all of the acid should be added to the dye bath at once but the dyestuff, previously dissolved, should be added in small portions. When using Auramine II with other dyestuffs add it after the boiling is completed. Acid dyestuffs should be added at the beginning of the process together with the necessary acid. When dyeing in a copper kettle add three ounces of ammonium sulphocyanide to each one hundred gallons of the dye liquor to prevent dulling the shade.

The following products are suitable for dyeing straw. Those marked with an asterisk are basic dye, the others acid:

Yellow—Auramine II; Tartrazine

PARAPHENYLENEDIAMINE BASE
FUCHSINE CRYSTALS
METHYLENE BLUE
METHYL VIOLET
ZOBEL
Manufactured by
ZOBEL COLOR WORKS
SALES OFFICE: 38 Water St., New York FACTORY: Brooklyn, N.Y.

H; Primazine G; Metanil Yellow extra PL; Azo Plavines; *Rheonine A; Euchrysine G and RR.

Orange and Brown—Orange II; *Chrysoidine A, R and L; *Vesuvine B, BL, BLR and OOO extra.

Red—Fixing Scarlet GR; Scarlet RA; Brilliant Scarlet P; Fast Scarlet P; Fast Red AV; *Saffranine T extra; *Rhodamine 3B, B, G, 3G.

Violet—*Saffranine MN; Acid Violet 4RN; *Magenta Powder A, AB; *Diamond Magenta colors; *Cerise colors; *Iris Violet; *Methyl Violets; *Marine Blues; *Crystal Violet; *Anthraquinone Violet.

Blue—Cyananthrol BGA, BA; Anthracene Blue SWGG extra; Brilliant Anthrazurel; Anthraeyamine Blue SR extra paste, SR extra powder; *Methylene Blues; *Dark Blue R, B; *Cotton Blues; *Nile Blues; Neptune Blue B.

Green—Wool Green S; Neptune Green S, G, SBN; *Diamond Green G, B.

Grey—Nigrosine X.

Black—*Jute Black B; *Straw Black; Jet Black.

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Chip

Thoroughly wet out the material in hot water before dyeing and bleach it, if necessary, with chloride of lime by the same methods used for bleaching straw. Dye with basic dyestuffs with the addition of from one to two pounds of acetic acid (nine degrees Tw., thirty per cent.) or alum. Commence the dyeing operation cold, raise the temperature to one hundred and fifty degrees F. and let the chip remain in the cooling bath for from thirty minutes to one hour.

Dye with acid dyestuffs with the addition of from two to three pounds of acetic acid (nine degrees Tw., thirty degrees) for from fifteen to thirty minutes at the boil, afterwards allowing the material to remain for from one to two hours in the boiling bath.

Dye with substantive dyestuffs at the boil for from fifteen to thirty minutes with the addition of ten pounds of common salt or calcined Glauber's salt, or twice as much crystallized Glauber's salt, afterwards allowing the material to steep in the cooling bath for a short time.

Horse Hair and Pig Bristles

Thoroughly clean the material with a warm solution of soda and soap before commencing the dyeing operation. The dyeing may be performed with acid, after chromed, basic or substantive dyestuffs depending upon the fastness desired and the use to which the material is to be put.

To dye black, the shade most generally in demand, use the Palatine and Mgalma Blacks. If greater fastness is desired the Palatine Chrome Blacks or Diamond Black F may be used.

Sisal

Black is the color most generally dyed on sisal. For this and other shades work with the substantive dyestuffs in the same manner as for cotton. Dye at the boil with the addition of ten per cent. calcined Glanber's salt and one per cent. of soda ash for one hour. Let the goods cool in the bath and rinse. Cotton Black E extra is the most suitable for dyeing this material.

SWISS TO SAFEGUARD CONSUMERS OF THEIR PRODUCTS FROM GERMAN TRICKERY

Of interest to dye consumers should be the announcement, through the *Journal de Geneve*, received at the U. S. Bureau of Foreign and Domestic Commerce, that steps are being taken in Switzerland to prepare against the danger of attempts being made to pass off German goods as goods of Swiss origin after the war. This effort, says *Commerce Reports*, takes the form of the institution of a national Swiss trademark. Promoted by the Geneva Chamber of Commerce, an association known as a "Syndicat pour L'Exportation Suisse" has been organized.

The controlling committee of this syndicate, consisting of fifteen members, will have its head office in Geneva. The object of the "S. P. E. S.," as the organization will be generally known, is to promote the exportation of genuine Swiss products. It has no pecuniary aim. As owner of the mark "S. P. E. S." indicating Swiss origin, it will give its members the right to use this mark for goods which are the product of Swiss soil and Swiss industry, and also for goods which have undergone in Switzerland such manipulation as to confer on them a new character. This, of course, would include dyestuffs manufactured from bases or intermediates obtained elsewhere. Membership in the S. P. E. S. is confined to native-born Swiss citizens and to those who have been naturalized for a minimum of ten years.

A NEW DISAZO DYE

Dr. Rudolph Schule, of Frankfort, (Amer. Pat. 1,241,153; Sept. 25, 1917), describes a new disazo dyestuff which yields very fast green shades on developing with phenols and various other aromatic compounds.

The starting point is the diazo compound obtained from diazo-p-nitro-benzene and aminocresolalkylether

$$(CH_3:NH_2:OR=1:3:4)$$

where R denotes an alkyl group. This is subjected to further diazotation with m-aminophenyl-8-oxy-1.2. naphthimidazole-3.6-disulfonic acid in alkaline solution. The disazo dyestuff thus obtained dyes cotton bluish black shades. These may be developed on the fiber, yielding brilliant green shades by further diazotising and developing with 1-phen,yl-3-methyl-5-pyrazolone, phenol, cresol or resorcinol. Brilliant green shades are likewise obtained by after-treatment with p-nitrodiazobenzene. The developed dyeings are of good fastness to washing, soap and light.

The process is illustrated by the following example:

The diazo compound obtained from 13.8 kilos p-nitraniline, 35 kilos hydrochloric acid and 6.9 kilos sodium nitrite, is allowed to run into a solution of 13.7 kilos aminocresolmethylether with 11.5 kilos hydrochloric acid, cooled down to 0° C. by the addition of ice. The formation of the aminoazocompound is complete after about 4 hours' standing. It is further diazotized by the addition of about 11.5 kilos hydrochloric acid and 6.9 kilos sodium nitrite, and then allowed to run into a solution of 43.5 kilos m-aminophenyl-8-oxy- 1.2-naphthimidazole- 3.6-disulfonic acid, rendered alkaline with sodium carbonate. The dyestuff is salted

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In hoc signo vincimus

DYE EXCHANGE CORPORATION

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out from the warmed solution by means of common salt, and filtered off.

The dyestuff dissolves in water with a bluish black color, in concentrated sulfuric acid with a green color. The bluish black shades on cotton are turned into a brilliant green by developing with phenylmethylpyrazolone, into a green shade by developing with resorcinol, phenol or o-, m-, and p-cresol.

By aftertreatment with p-nitrodiazobenzene, brilliant green shades are obtained.

Want Bleachable Dyes Used

A request has been made to the United States Quartermaster Department that the Government use dyes in coloring uniform cloth which will be more easily removable than the dyes used at present. This request has come from paper manufacturers who depend upon cuttings and waste material from garment factories as their source of raw supply, and who are finding the refuse from the manufacture of army uniforms almost impossible to bleach.

Usually the paper manufacturers are able to get such stock as goes into the making of blue overalls and other bleachable goods, but with the Government at present requiring so much machinery in the making of olive drabs and khaki cotton goods the more bleachable materials are almost unobtainable.

It is not thought the request of the paper manufacturers will bring about any change in the specifications of the dyes to be used, but information has been forwarded to them as to the best methods of bleaching, and it is expected that this to a great extent will aid them in their business.

Renewed evidences of interest on the part of dye manufacturers in the coming Fourth National Exposition of Chemical Industries is shown by the determination of Buffalo chemists and dye men, including Drs. Watkins and Derrick, of the Schoellkopf plant of the National Aniline & Chemical Co., and a number from the Donner company, to journey east in order to attend. The last named concern is building a $7,000,000 plant for the production of toluol and other chemicals.

Representatives of something over 700 textile mills are convening this week at Atlanta, Ga., to hear Government plans for utilizing funds provided by the Smith-Hughes act whereby the State or local boards of education will receive assistance in establishing vocational training in textile communities. The mills represented are all located in the southeastern part of the country.

Tentative plans are being drawn up for the National Aniline & Chemical Co.'s proposed two-story, 40 x 85 brick addition to its plant at Ditmas avenue and Eighty-third street, Brooklyn, N. Y.

Much satisfaction has been expressed by members with the operations of the newly organized Master Dyers Exchange of New England, which has now been in active existence a little more than a month.

Fresh bulwarks for the dye industry of the future are indicated by the report that the Sloss-Sheffield Steel & Iron Co. of Birmingham, Ala., is considering with Government officials the erection of a $2,000,000 by-product coke oven plant.

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The application of dyestuffs to textiles is as important as their production. The technique of this branch of the color industry has for years commanded the best talent among those dyestuff distributors who have catered to the highest class of trade.

An intimate knowledge of the possibilities of every dyestuff is often necessary to meet the particular requirements of the consumer. Dyeing is a chemical, not a mechanical process, and the variation of local conditions, due to differences in quality of water, steam and chemicals, makes the dyehouse problem an individual one.

Such problems are welcomed by the technical department of this company, which is manned by chemists who have been picked because of their knowledge, practical experience and demonstrated ability. We have long maintained well-equipped laboratories at our different offices for this purpose, and invite inquiries and extend, without any obligation on the part of our customers, our services to all who stand in need of them.

National Aniline & Chemical Company

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21 Burling Slip, New York